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ABSTRACT

Newly assembled evidence indicates that children attending South Carolina's early childhood programs are better prepared for first grade than those who do not attend kindergarten. Children who attended some type of kindergarten in 1979-80 reached higher levels of achievement by the end of first grade than children who did not attend. These levels persisted in spite of the provision of compensatory services to the less-ready students during first grade. First graders were assessed in 1981-82; correlations of readiness scores at the beginning of first grade with achievement scores at the end of first grade were .656 for reading achievement and .577 for mathematics achievement. In addition, children who attended some type of kindergarten in 1979-80 were significantly less likely to repeat first grade than children who did not attend. Findings bear a relationship to those of long term experimental studies whose initial results demonstrate that good early childhood programs give children from low income families a better chance of succeeding in school and of later avoiding delinquency and holding a job. (AS)

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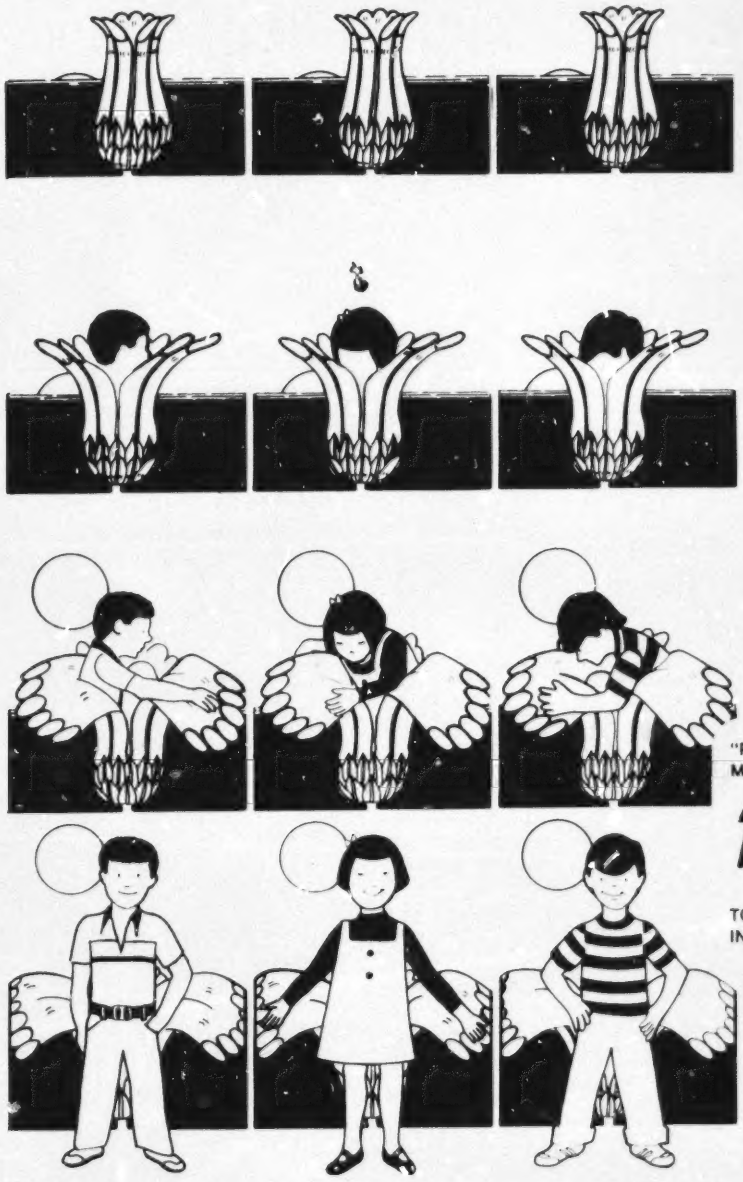
South Carolina's Early Childhood Programs are a Good Investment



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SOUTH CAROLINA'S EARLY CHILDHOOD PROGRAMS ARE A GOOD INVESTMENT

A Report to the

Office of the Governor of South Carolina

from the

High/Scope Educational Research Foundation
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Prepared by

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January 10, 1984

EXECUTIVE SUMMARY

Newly assembled evidence demonstrates that South Carolina's early childhood programs are doing a good job of helping children achieve greater success in first grade.

The state's publicly funded programs prior to kindergarten--Head Start, Child Development Programs, and Child Development Centers--serve children from low income families and others with potential learning problems. Of the 13,000 four-year-olds who live in low income families and are predicted to have problems in school, less than half are served by any publicly funded early childhood program. Available data indicate that Child Development Centers:

- help children overcome these potential learning problems.
- lead to an increase in the percentage of these children found ready for first grade.

Perhaps as many as 2,300 children a year do not attend any type of kindergarten--approximately 1,300 report non-attendance and another 1,000 do not report whether they attended kindergarten. Children attend kindergarten in public schools, Child Development Programs, Head Start, or private programs. Children who attend these programs perform better in school, as indicated in the comparisons below:

- 72% of those who attend kindergarten are found ready to enter first grade, as compared to 39% of those who do not attend.
- at the end of first grade, those who attend kindergarten score significantly higher on reading and arithmetic tests.
- only 10% of those who attend kindergarten must repeat first grade, as compared to 36% of those who do not attend kindergarten.

These findings resemble the initial findings of long-term experimental studies around the country. These studies have gone on to find that good early childhood programs give children from low income families better chances of succeeding in school and later avoiding delinquency and holding a job. These programs have been shown to justify their expense by returning economic benefits to taxpayers that far exceed the initial investment. For example, a 20-year study conducted by the High/Scope Educational Research Foundation in Ypsilanti, Michigan showed that the return on investment in a high quality early childhood program was four dollars for every dollar spent.

South Carolina, a state of over three million people, sees fifty thousand children born each year. Today, the state has over a quarter of a million young children living in the important period of life between birth and first grade. What are the responsibilities and interests of South Carolina parents and other citizens towards these children whose experiences now have vast consequences for the future of the state?

There is a growing body of evidence of the effectiveness of South Carolina's early childhood programs. This evidence shows that children who attend the state's kindergartens and publicly funded early childhood programs before kindergarten are better prepared to enter school and be successful in first grade. Parents whose children were in these programs have testified to their effectiveness:

> **When I look at the two children I have had in the program and look at the ones that have not been in the program, I can see the difference.**
>
> **The program prepares children for school. It gives them an early start in life. The games teach them that learning can be fun and not boring. The teacher gives time, patience and love, which is the key to the success of the child and of the program.**

*Funding for this report was provided jointly by the South Carolina Department of Education and the Department of Social Services through the Office of the Governor, supplemented by funds from Carnegie Corporation of New York. Relevant data were provided by the Department of Education, the Department of Social Services, Head Start programs and other early childhood educators in South Carolina. The opinions expressed herein are those of the authors and not necessarily those of the sponsoring agencies.

as this. It would have given him a little more head start in school.

I have observed my son and other children in his classes develop both socially and academically. At the preschool and elementary levels we can prevent learning and discipline problems before they occur.

South Carolina's Programs for Four-Year-Olds Improve Readiness for First Grade

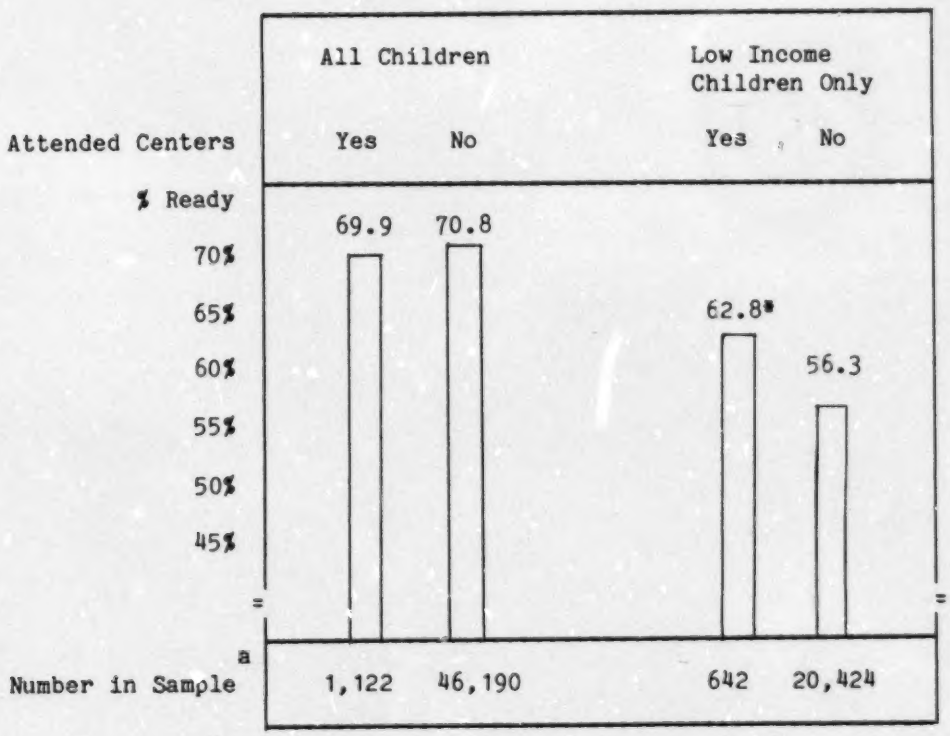
Evidence of effectiveness is currently available for the state funded Child Development Centers sponsored by the Department of Education. These programs have been found to improve the readiness for first grade of children for whom tests have revealed potential learning problems. Each fall a readiness test called the Cognitive Skills Assessment Battery is administered to all first graders to determine their readiness for school. The effectiveness of Child Development Centers may be assessed by comparing the readiness status of children who attended them with the readiness status of all other children in the state.[1]

One purpose of Child Development Centers is to help children who are far behind their peers catch up. Therefore one indicator of success of these children is that they score the same as the average child at entry to first grade. Figure 1 presents the results of two comparisons. The first comparison shows that there is no statistically significant difference in first grade readiness between the children with potential learning problems who attended Child Development Centers and all other students in the

state.[2] Thus, early childhood programs appear to help these children catch up with everyone else. Second, when the comparison is limited to low income children (that is, children eligible for the free lunch program), the percentage found ready for first grade is significantly higher for children who attended Child Development Centers than for all other low income children in the state. Since family income is strongly related to children's academic success, this comparison provides a better estimate of the effect of Child Development Centers.

Figure 1

Percent Ready for First Grade:
Children with Potential Learning Problems
Who Attended Child Development Centers
Vs. Other Children in the State



*This difference is statistically significant with a probability of less than .01.

[a] Children who entered first grade in 1982.

Early Childhood Programs in South Carolina

Early childhood programs in South Carolina serve an estimated 47 percent of the four-year-olds and 27 percent of the three-year-olds in the state.[3] An estimated two-thirds of these children are enrolled in a variety of privately funded programs of early education and child care, requiring that parents must pay for the services.

The taxpaying public has a special interest in early childhood programs that are publicly funded. There are three publicly funded programs that serve the developmental needs of preschoolers, primarily from low income families, in South Carolina. Table 1 presents the overall 1983-84 enrollment statistics for the federally administered Head Start programs, the Child Development Programs administered by the Department of Social Services, and the Child Development Centers sponsored by the Department of Education. All of these programs also provide a variety of other services to children and families.

Table 1

1983-84 Program Enrollment for South Carolina's Publicly Funded Child Development Programs

Program	Ages 0-3	Age 3	Age 4	Age 5	Totals*
Child Development Centers Only (Dept. of Education)	80	500	2,443	332	3,357
Child Development Programs Only (Dept. of Social Services)	887	1,360	1,278	673	4,208
Children Served by These Programs Jointly	0	202	324	246	772
Head Start (Federally Administered)	0	1,727	3,346	1,041	6,120
Totals by Age	967	3,789	7,391	2,292	14,457

*Totals exceed sums of rows because of children whose age was unreported.

Children from low income families--that is, families with annual incomes at or below 125% of the federal poverty level ($12,375 for a family of four)--constitute 29% of all three- and four-year-olds in South Carolina. These children are targeted in all of the publicly funded early childhood programs. Two out of five children from low income families in the state are now served by some publicly funded early childhood program. Table 2 delineates the extent to which these children are served. The most telling statistics are that, among low income children, more than two-thirds of the three-year-olds and half of the four-year-olds of South Carolina are still unserved by any publicly supported early childhood program.

Table 2

1983-84 Program Enrollment
for Children 3 and 4 from Low Income Families
in South Carolina

Children or Program	Age 3	Age 4	Ages 3 and 4
Low Income Children[a]	13,117 100.0%	13,356 100.0%	26,473 100.0%
Total Enrolled in Programs[b]	3,575 27.3%	6,345 47.5%	9,920 37.5%
Unserved Low Income Children	9,542 72.7%	7,011 52.5%	16,553 62.5%

[a] 1980 Census; low income refers to families at or below an income that is 125% of the federal poverty level, $12,375 for a family of four.

[b] Includes all children in Head Start and in Child Development Programs of the Department of Social Services; and 57.2 percent of the children in Child Development Centers of the Department of Education, the percentage of former CDC students who were free lunch eligible at school entry in fall of 1982.

South Carolina's Kindergartens Improve First Grade Performance

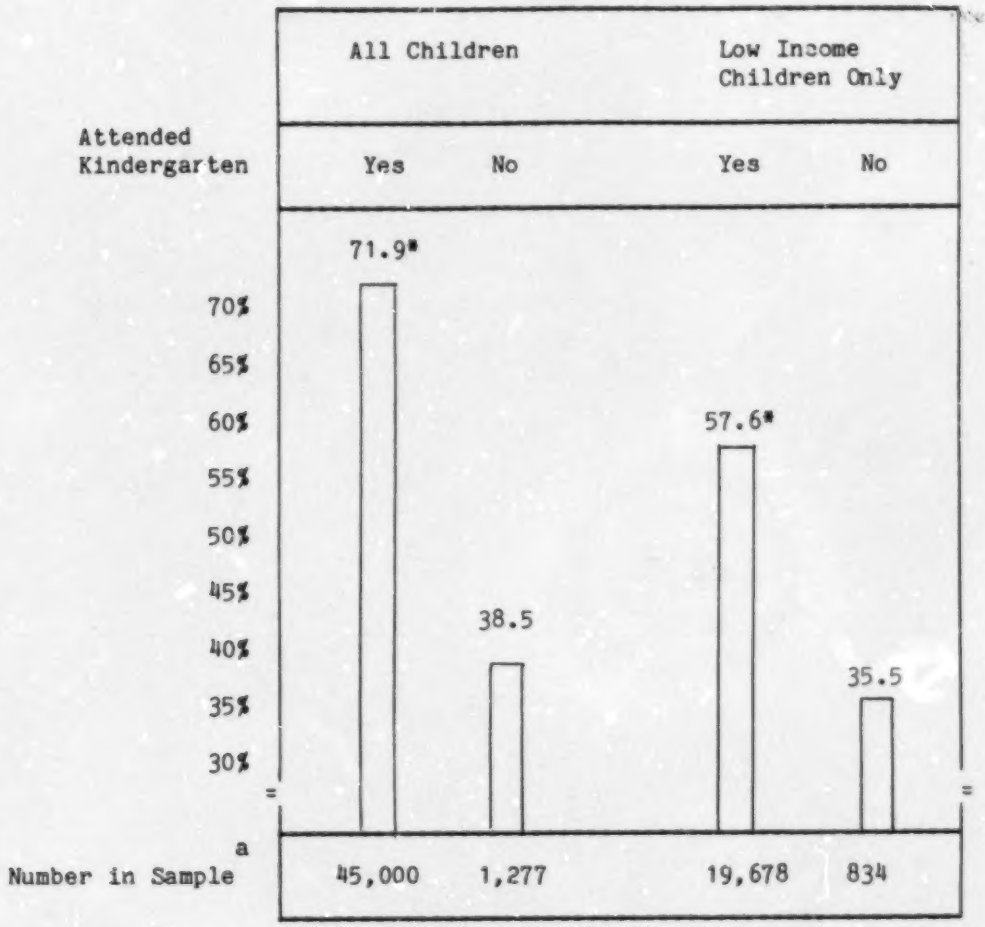
South Carolina is a leader among states in serving five-year-olds, with 97% of them enrolled in some type of kindergarten program. In the 1981-82 school year, public school kindergartens served 82% of the state's five-year-olds, other publicly funded programs 5%, and privately funded programs 8%. The remaining 5% of five-year-olds, some 2,312 children, either reported not being enrolled in any kindergarten program (1,277 children) or did not indicate program status at age 5 (1,035 children).[4]

Although the value of kindergarten is now generally accepted, it is worth considering the apparent consequences for children who still do not attend. In Figure 2 we consider the first grade readiness of five-year-olds who were eligible for kindergarten in 1981-82. The comparisons show a substantial difference in favor of those who attended some type of kindergarten--for all children and for low income children considered separately.

The simple comparison of those who did and did not attend kindergarten must be interpreted carefully. Factors other than kindergarten attendance may account for some of the difference in readiness. A major factor, family income, is taken into account when children from low income families are considered separately. Another approach is to use statistical techniques that examine the effect of kindergarten while taking other factors into account. The available information about first graders includes the important variables of gender, ethnicity, and free lunch program eligibility. When these variables are added to the statistical analysis, the conclusion stands: children who attended kindergarten were better prepared for first grade.[5]

Figure 2

Percent Ready for First Grade:
Children Who Attended Kindergarten
Vs. Children Who Did Not Attend



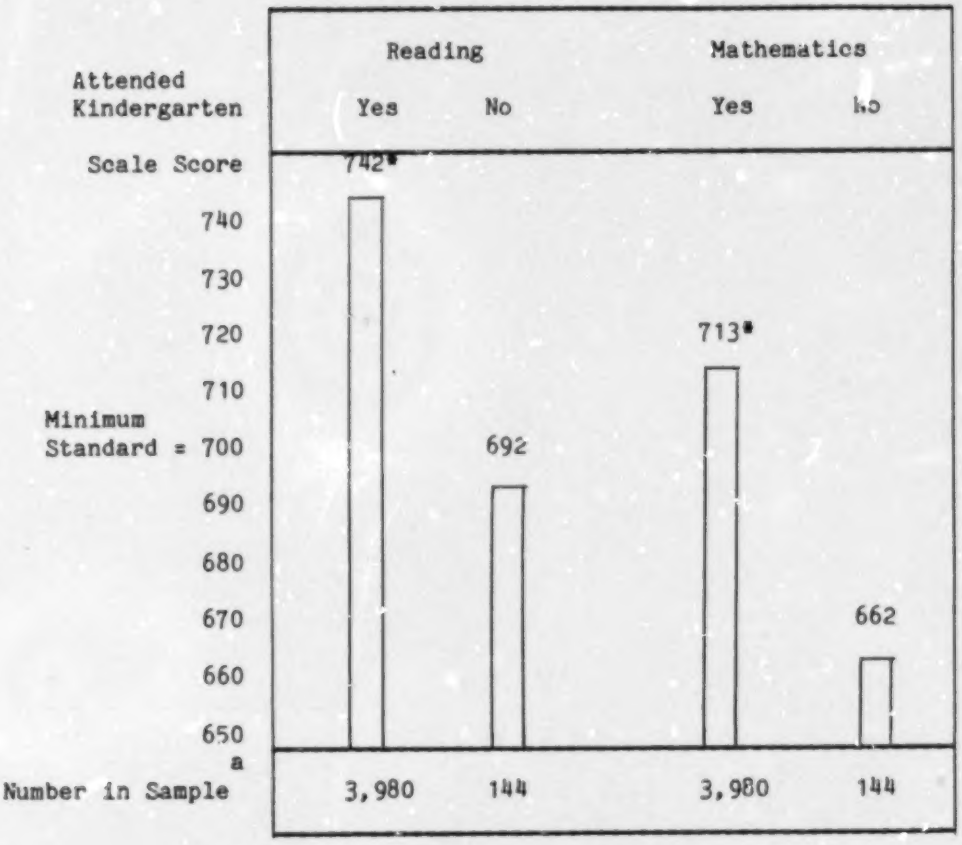
*Differences are statistically significant with a probability of less than .0001.

[a] Children who were eligible for kindergarten in 1981-82 and entered first grade in 1982.

Children who attended some type of kindergarten in 1979-80 reached higher levels of achievement by the end of first grade than children who did not attend.[5] These results are presented in Figure 3 for children across all family incomes and in Figure 4 for low income children. It should be noted that higher achievement scores for those who had attended kindergarten persisted in spite of the provision of compensatory services to the less ready students during first grade.

Figure 3

Mean First Grade Achievement:
Kindergarten Students Vs. Non-Students

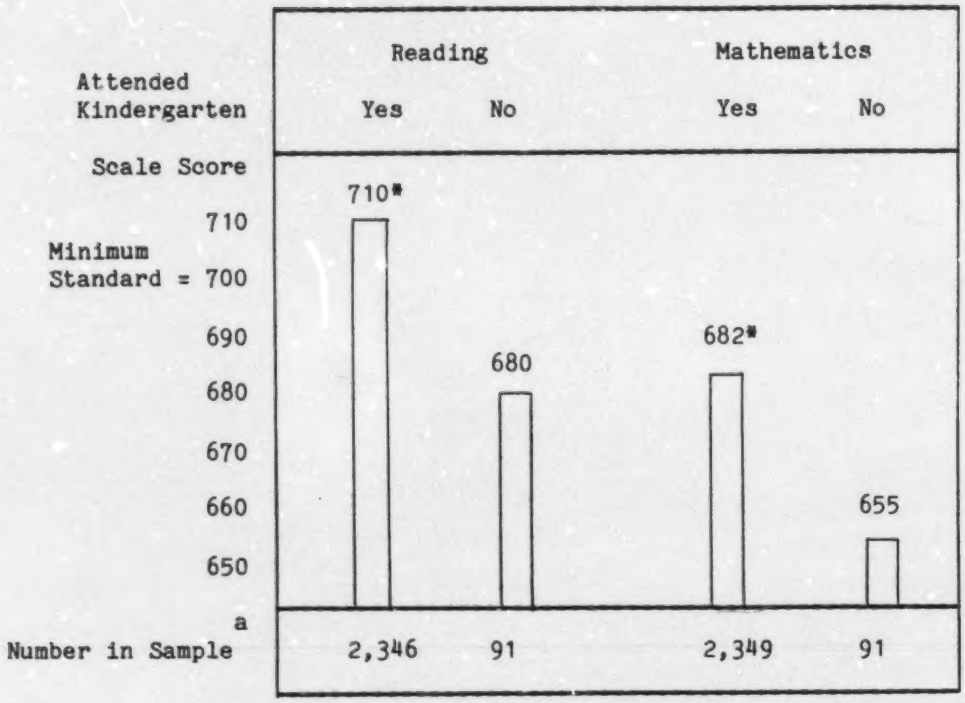


*Each group difference is statistically significant with a probability of less than .001.

[a] 10% sample of all first graders in 1980-81.

Figure 4

Mean First Grade Achievement:
Kindergarten Students Vs. Non-Students
from Low Income Families



*Each group difference is statistically significant with a probability of less than .001.

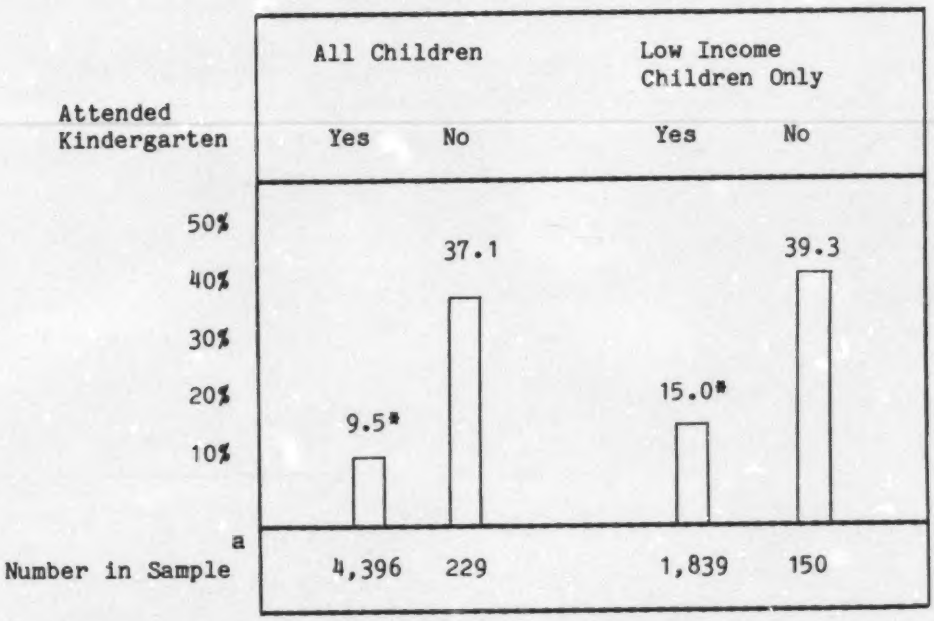
a 10% sample of all first graders in 1980-81.

Readiness is a good predictor of success in first grade. For all first-graders in 1981-82, the correlations of readiness scores at the beginning of first grade with achievement scores at the end of first grade were .656 for reading achievement and .577 for mathematics achievement. Again, more complex statistical analyses that take other factors into account support these conclusions.

Children who attended some type of kindergarten in 1979-80 were significantly less likely to repeat first grade than children who did not attend.[6] For children of all family incomes, as shown in Figure 5, only one out of ten kindergarten students had to repeat first grade, while this was the case for nearly four out of ten of those who did not attend kindergarten. For children from low income families, the rate of first grade retention for kindergarten students was considerably less than half the rate for those who did not attend kindergarten. These results imply economic benefits to taxpayers that partially offset the costs of kindergarten.

Figure 5

Percent Who Must Repeat First Grade:
Kindergarten Students Vs. Non-Students



*Differences are statistically significant with a probability of chance occurrence of less than .0001 (1 in 10,000).

[a] 10% sample of all first graders in 1980-81.

The Long-Term Evidence

The evidence of the effectiveness of South Carolina's early childhood programs presented on the preceding pages is consistent with findings about such programs that have come from long-term experimental studies around the country--studies such as that of a Head Start program in Georgia, a comprehensive child care program in North Carolina, and the Perry Preschool program in Michigan.[7] In these studies, comparable effects on children's school performance in the early grades led to findings of positive effects even into adulthood. They show that a variety of good early childhood programs have beneficial effects on the lives of children from low income families. Specifically, good early childhood programs for children from low income families help:

- improve their intellectual performance and scholastic achievement;
- reduce unnecessary special education placements;
- prevent some of them from dropping out of high school;
- prevent some juvenile delinquency and teenage pregnancy; and
- improve their employability and decrease their need for welfare assistance.

Such programs are a worthwhile public investment, justifying their expense by returning economic benefits to society--reduced expenditures for special education and juvenile delinquency and an increase in the taxable incomes of participants when they become adults. Public expenditures for good early childhood programs will, in the long run, result in a savings in public expenditures.

Footnotes

[1] This comparison is not quite the same as comparing those who attended Child Development Centers with children who had no early childhood program, because there are other early childhood programs. The net effect is that the effectiveness of the Child Development Centers is underestimated.

[2] Tests of significance for differences in percentages used for this report are chi-square, Fisher's exact test, and the standard normal variable as appropriate.

[3] Estimates based on M. Chorvinsky, Preprimary enrollment 1980. Washington, D. C.: National Center for Education Statistics, 1982. Based on the October 1980 Current Population Survey conducted by the U. S. Bureau of the Census.

[4] Based on Department of Education data for first-graders in fall, 1982. Actual values are as follows:

Public school kindergarten	38,674
Other publicly funded programs	2,538
Privately funded programs	3,788
All programs	45,000
Unserved children	1,277
Unknown program status	1,035
Total number of children	47,312

[5] Based on a 10% sample of children who were first grade students during the 1980-81 school year. Except when grade repetition was a dependent variable, statistical analyses were performed only on non-repeating first graders. The sample used in these analyses is a specially prepared sample that matches readiness test data at the beginning of first grade with achievement test data at the end of first grade. Statistical tests used here were a likelihood ratio test of full and restricted logit models for readiness status and a test of full and restricted multiple regression models for readiness test scores.

[6] Based upon tests of differences between full and restricted multiple regression models.

[7] As before, more complex statistical models confirm this finding, in this case a likelihood ratio test of full and restricted logit models.

[8] M. S. McDonald and E. Monroe, A follow-up study of the 1966 Head Start program; unpublished manuscript, Rome City Schools, 1981. C. T. Ramey and R. Haskins, The causes and treatment of school failure: Insights from the Carolina Abecedarian project. In M. J. Begab, H. C. Haywood, and H. L. Garber (Eds.), Psychosocial influences in retarded performance, Vol. 2: Strategies for improving competence; Baltimore: University Park Press, 1981. L. J. Schweinhart and D. P. Weikart, Young children grow up: The effects of the Perry Preschool program on youths through age 15; Ypsilanti, MI: High/Scope Press, 1980.